



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,286	03/12/2004	Kenneth E. Davis	DA V001-082	5177
7590 DIEDERIKS & WHITELAW, PLC 12471 Dillingham Square, #301 Woodbridge, VA 22192			EXAMINER BANKHEAD, GENE LOUIS	
			ART UNIT 3744	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	04/04/2007	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/798,286	DAVIS ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Gene L. Bankhead	3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 20 November 2006.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-20 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 03/12/04 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

***Response to Arguments***

Applicant's arguments filed 11/20/06, with respect to the rejection(s) of claim(s) 1-5,7-9, and 11-14 under 35 U.S.C. 103 and claims 16-20 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Davis et. al (US 6772601).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-9, 12-13, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 7, the recitation of "maximize the operational speed of the evaporator fan based on signals received from the evaporator temperature sensor and the ambient temperature sensor is unclear in context." It is believed "maximize" is meant to be -- optimize-- in order to increase refrigeration system efficiency, and so has been treated. Appropriate correction required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 3744

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 10-11 and 14-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Davis et al. (US 6772601).

Regarding claims 1, Davis et al. teach a refrigerator comprising; a cabinet shell 38 including a fresh food compartment 43 and a freezer compartment 40; and a passage 128 for fluidly interconnecting said fresh food compartment with said freezer compartment, see Figure 2. Davis et al. further teach a variable position damper 130 provided in the passage for directing a flow of cooling air to the fresh food compartment from the freezer compartment; and a refrigeration system (see Figure 2) for cooling at least the freezer compartment with the refrigeration system including a compressor 49, a condenser 61, an evaporator 52, an evaporator fan 70, and a fresh food compartment

Art Unit: 3744

air stirring fan 110 positioned in the fresh food compartment. Davis also teaches a plurality of sensors for detecting various operating parameters of the refrigerator (column 4 lines 38-53) and

a control system 160 for altering a position of the damper and varying an operational speed of each of the compressor, evaporator fan and stirring fan based on signals received from the sensors (column 5 lines 3-30). Though Davis et al. do not explicitly teach varying the speed of the evaporator fan and stirring fan it is inherent the CPU will vary the operational speed of these components in accordance with the desired airflow based on the temperature sensors.

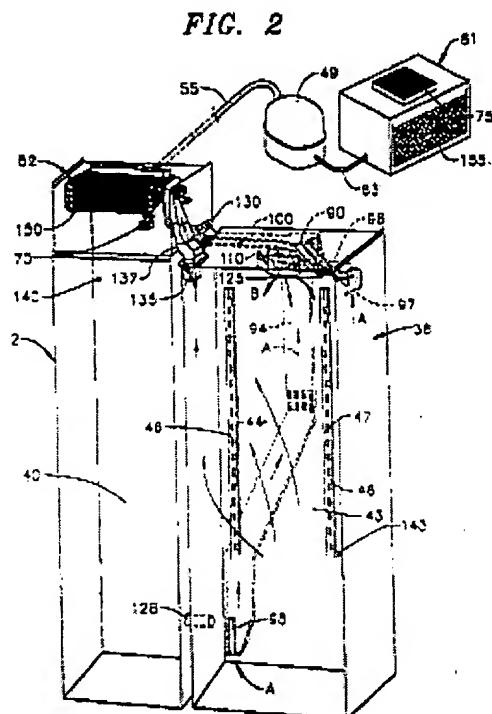
With regard to claim 2, Davis et al. teach a freezer compartment temperature sensor 140.

In regard to claims 3 and 4, Davis et al. teach the control system varies the operational speed of the compressor based upon the freezer compartment temperature and teach a means for an operator to select a desired operating temperature, wherein the control system varies the operational speed of the compressor based solely upon the freezer compartment temperature and the desired operating temperature (column 5 lines 3-30).

Regarding claim 5, Davis et al. teach the plurality of sensors includes a freezer compartment temperature sensor 140, an evaporator temperature sensor 150, a fresh food compartment temperature sensor 143, and an ambient temperature sensor 155.

In regard to claim 6, Davis et al. teach the ambient temperature sensor 155 is positioned directly adjacent to the condenser 6, (see Figure 2).

In regard to claim 10, Davis et al. teach all limitations of claim 1, and further teach the refrigeration system, except for the stirring fan, is mounted above the cabinet shell (Figure 2).



**Figure 2: (US 6772601)**

With regard to claim 11, Davis et al. teach a refrigerator with a cabinet shell including a fresh food compartment 43 and a freezer compartment 40, said fresh food compartment being adapted to be placed in fluid communication with said freezer compartment. Davis et al. further teach a refrigeration system including a compressor 49, condenser 61, evaporator coils 52, an evaporator fan 70, and a fresh food

compartment air stirring fan 110, each of said compressor, evaporator fan and stirring fan being operable at varying speeds;

an evaporator coil temperature sensor 150 for detecting a temperature of the evaporator coil; an ambient air temperature sensor 155 for detecting a temperature of the ambient air; and a control system 160 for regulating the refrigeration system, said control system establishing an operational speed of the evaporator fan based on signals received from the evaporator coil temperature sensor and the ambient air temperature sensor.

In regard to claim 14, Davis et al. teaches all limitations of claim 11, and further teach a freezer compartment temperature sensor 140 for sensing a freezer compartment temperature; and means enabling an operator to select a desired operating temperature for the refrigerator, wherein the control system varies an operational speed of the compressor based solely upon the freezer compartment temperature and the desired operating temperature (column 5 lines 3-30).

In regard to claim 15, Davis et al. teach all limitations of claim 1, and further teach the refrigeration system, except for the stirring fan, is mounted above the cabinet shell. See the rejection of claim 10 as claims cite similar subject matter.

Regarding claim 16, Davis et al. a refrigerator that performs the method as claimed. Davis et al. teach a refrigerator that includes a variable speed compressor 49, an evaporator 52, and a variable speed evaporator fan 72. Davis et al. teach sensing a temperature in the compartment; sensing an ambient temperature; determining a desired operating temperature for the refrigerator based on a setting selected by an operator of the refrigerator; varying an operational speed of the compressor based on

Art Unit: 3744

the desired operating temperature and the temperature in the compartment; and varying an operational speed of the evaporator fan based on the operational speed of the compressor (column 3 lines 3-30).

In regard to claim 17, Davis et al. further teach varying the operational speed of the compressor solely on the desired operating temperature and the temperature in the compartment (column 5 lines 3-30).

With regard to claim 18, Davis et al. further teach sensing a temperature at coils of the evaporator; optimizing the operational speed of evaporator fan based on the temperature at the coils of the evaporator and the ambient temperature; and reducing the operational speed of the evaporator fan based on the operational speed of the compressor (column 6 lines 9-25).

In regard to claim 19, Davis et al. teach the method of claim 16, however do not explicitly teach varying a speed of a stirring fan provided in the refrigerator. It is inherent that an operational speed of the stirring fan will be varied to compensate for temperature fluctuations within the refrigeration compartment based on temperatures detected by the temperature sensors.

In regard to claim 20, Davis et al. teach all limitations of claim 16 and further teach controlling the refrigeration system based on opening signals for at least one door of the refrigerator (column 1 lines 21-31).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-9,12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis et al. (US 6772601).

Regarding claims 7 and 12, Davis et al. teach all limitations of claim 5 and 11 and further teach the optimizing the operational speed of the evaporator fan for additional cooling to be performed in the freezer compartment (column 6 lines 9-12 and 24-28). It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the operational speed of the evaporator fan based on the ambient and evaporator temperatures because the temperature of the evaporator and ambient air directly affect the temperature of the freezer compartment. Thus to maintain the freezer temperature at a certain temperature it is necessary to optimize the operational speed of the evaporator fan.

In regard to claims 8 and 13, Davis et al. teach all limitations of claim 7 and 12 however fail to explicitly teach reducing the operational speed of the evaporator fan based on a reduction in the operating speed of the compressor. Davis et al. does teach the operating the speed of the compressor to minimize energy usage (column 6 lines 18-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the speed of the evaporator fan based on a reduction in

Art Unit: 3744

the operating speed of the compressor in order to minimize energy usage and ensure there is not a large temperature deviation within the freezer compartment in view of the teachings of Davis et al. (column 6 lines 15-25).

With regard to claim 9, Davis et al. teach all limitations of claim 8, and further teach means enabling an operator to select a desired operating temperature for the refrigerator, wherein the control system varies the operational speed of the compressor based solely upon the freezer compartment temperature and the desired operating temperature (column 6 lines 15-20).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gene L. Bankhead whose telephone number is (571)-272-8963. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571)-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GB  
Examiner  
Art Unit 3744



Edward K. Look  
EDWARD K. LOOK  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700

4/2/07